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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,838	08/15/2001	David T. Amm	SLM-06400	1401

28960 7590 03/19/2003

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EXAMINER

JUBA JR, JOHN

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 03/19/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/930,838

Applicant(s)

AMM ET AL.

Examiner

John Juba

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/17, 12/02, 12/26/02, 2/11 & 2/12/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 15-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 is/are allowed.
- 6) ☒ Claim(s) 31-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7, 8, 12, 13
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

The corrected or substitute drawings were received on December 26, 2002.
These drawings are acceptable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 31 – 35 stand rejected under 35 U.S.C. 102(e) as being anticipated by Kowarz, et al (U.S. Patent number 6,172,796). Referring to the discussion of Figures 10 – 12, Kowarz, et al disclose a modulator comprising reflective, conductive, elongated elements operable in *dynamically* variable groupings of at least three movable elements to either reflect light, diffract light into a single order at an angle θ , or to diffract light into a different angle ($-\theta$). The claims require that (a) the groupings have an identical *number of* elements numbering at least three, (b) *the groupings* be dynamically reconfigurable, and (c) the elements within each grouping are of relatively adjustable height. Numbering the ten elements (78) in Figure 10 from left to right as first through tenth elements, the grouping are configured with the 2nd, 3rd, 4th elements moving with

the 6th, 7th, and 8th elements to diffract light into the +1 order. The groupings are then reconfigurable with the 1st, 2nd, and 4th elements moving together with the 5th, 6th, and 8th elements, to diffract light into the -1 order. The examiner regards the electrostatic deflection of Kowarz, et al to a prima facie functional equivalent of the means disclosed for performing the adjusting function.

With regard to claim 33, Kowarz, et al disclose metal as a conductor (Col. 6, lines 62 – 65), and then teach that the reflective layer (78) is conductive.

Claims 31 – 33 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Gutin, et al (U.S. Patent number 6,421,179). Referring *for example* to the discussion of Figure 9 (*esp.* Col. 9, lines 30-35 & Col. 11, lines 13 – 18), Gutin, et al disclose grouping separated by two elements, whereby a grouping consists of at least three elements, and discloses applying individually varying electrical biases to the respective groupings. Further, Gutin, et al expressly teach that the arrangement is operable for reflection or diffraction into a single order (Col. 5, lines 311 –38).

Claim 37 is rejected under 35 U.S.C. 102(e) as being anticipated by Godil, et al. Referring to the discussion of Figures 3B and 3C, Godil, et al disclose a means for reflecting an incident means, and means for adjusting the reflection means such that light diffracts and an angle varying from θ_1 to θ_2 . Although a lens is used to obtain the far-field diffraction pattern, it is clear from the mathematical description that Godil, et al rely upon diffraction into the same single order ($m=0$).

Allowable Subject Matter

Claims 1 – 14 are allowable over the prior art. The following is a statement of reasons for the indication of allowable subject matter: The prior art taken alone or in combination fails to teach or fairly suggest, *in combination*, a plurality of elongated elements arranged and cooperating (or means) to diffract light into at least two diffraction orders, and an electrical bias applied between conductive elements *such that* (or means for) causing light to be diffracted into a single, *non-zero* diffraction order *different* from that at least two diffraction orders, as variously recited in each of claims 1 and 12 – 14.

Although Islam, et al (U.S. Patent number 6,445,502) disclose an apparatus (Fig. 6a) that is *structurally* similar to one of Applicants' embodiments (Fig. 12), Islam, et al do not disclose or suggest the *function* or cooperation of elements to as recited for example in claim 1. The further recitation of the structure *of the elongated elements* (e.g., in claim 8) does not remove the interpretation of the "means for adjusting a height of selected ones" from the rubric of § 112, sixth paragraph. That is, even though Islam, et al may disclose the same or similar means for moving selected ones of elements having very similar structure, they do not disclose or suggest means to perform the *function* of moving the elements *so that in operation the incident light diffracts into a single non-zero diffraction order different that the at least two diffraction orders*, as recited in claims 1 and 12-14.

Response to Amendment

Applicants' amendment of claim 10 removes any ambiguity therein, and the rejection of claims 10 and 11 under 35 U.S.C. § 112, second paragraph has been overcome.

The amendment of claims 1 and 14 is sufficient in overcoming the rejection of claims 1, 3, 4 – 7, and 14 under 35 U.S.C. §102(e) as being anticipated by Sweatt, et al (U.S. Patent Application Pub. 2002/0105725 A1). The apparatus of Sweatt, et al does not have a single-order mode in which the diffraction order is different from each diffraction order of the multi-order mode.

The rejection of claim 37 as being anticipated by Sweatt, et al is *withdrawn* in light of the following remarks. Although Sweatt, et al teach sweeping of the wavelengths directed to a detector (paras. [0044] – [0046]), they do not disclose this operation within a single diffracted order in such a manner as to *anticipate* the recited means diffracting light in a single order over a variable angle. The sweeping operation of Sweatt, et al *could be* performed with a single-blazed structure. But it also could be performed with a double-blazed structure, or even with a binary structure. It is clear from the discussion at [0064], that one embodiment employs a rectangular, rather than blazed, grating.

Feldman, et al fail to cure the aforementioned deficiencies of Sweatt, et al, and the rejection of claim 8 under §103(a) as being unpatentable over these two references has been overcome by the amendment of claim 1.

The amendment of claims 1, 12, and 14 is sufficient in overcoming the rejection of claims 1, 2, 4, 12, and 14 under §102(e) as being anticipated by Brazas, Jr., et al. Applicants are correct in noting that the single-order diffraction of Brazas, Jr., et al is not a *non-zero* single diffracted order, as now recited.

Bornstein, et al fail to cure the aforementioned deficiencies of Brazas, Jr, et al, and the rejection of claim 3 under § 103(a) as being unpatentable over these two references has been overcome by the amendment of claim 1.

Applicants' remarks have been fully considered, but the amendment of claim 31 is not sufficient in overcoming the rejection of claims 31 – 35 § 102(e) as being anticipated by Kowarz, et al (U.S. Patent number 6,172,796). The rejection has been restated above, with further explication as to the features argued by Applicants.

In light of Applicants' remarks, the amendment of claim 36 is sufficient in overcoming the rejection thereof as being anticipated by Kowarz, et al. What is conveyed to the artisan is the *application* of the same voltage to each of the elongated elements of Kowarz, et al. Despite the fact that each of the elongated elements of Kowarz, et al effectively is a variable capacitor, and as such *exhibits a transient voltage* that varies individually, the *applied electrical biases* are the same.

The rejection of claim 37 under §102(e) as being anticipated by Kowarz, et al is *withdrawn* in light of Applicants' remarks. Although the diffraction angle of Kowarz, et al is allowed to vary between a first single order and a second single order, neither of the single diffraction orders has a variable diffraction angle, as required by claim 37.

Art Unit: 2872

Applicants' amendment of claim 13 is sufficient in overcoming the rejection thereof under § 103(a) as being unpatentable over Sweatt, et al in view of Brazas, Jr, et al. As previously set forth for these references, diffraction into a different, single, non-zero order is neither disclosed nor suggested.

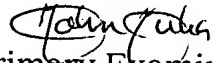
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (703) 308-4812. The examiner can normally be reached on Mon.-Fri. 9 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on Mon.- Thu., 9 - 5. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

John Juba


Primary Examiner, GAU 2872

March 13, 2003